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EXAMINER

NGUYEN, H

ART UNIT

PAPER NUMBER

2816

DATE MAILED:

08/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/606,367

Applicant(s)

CHEN ET AL.

Examiner

Hiep Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7 and 10-24 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is responsive to the amendment filed on 06-25-01. Applicant's arguments with respect to reference Takahashi (6,037,824) and Takahashi (5,982,689) have been carefully considered but they are not deemed to be persuasive to overcome the reference. Thus the claims remained rejected under Takahashi (6,037,824) and Takahashi (5,982,689). However, the rejections are changed because of the amendment of the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 6 and 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and /or clarification is required.

Regarding claim 5, the recitation " a first and a second inverter...and an inverted output terminal of said p-type sense amp." on lines 2-6 is indefinite because it is misdescriptive.

According to figure 5, the first inverter (520) and the second inverter (530), each does not have pull-up and a pull down terminal as claimed.

Regarding claim 11, the recitation " evaluating said differential circuit" on line 3 is indefinite because it is unclear how the " differential circuit is evaluated" and what is to be evaluated. The recitation " sensing differential output signals via a differential sense circuit" on line 4 is indefinite because it is unclear what " differential output signals" are to be sensed.

Claims 6 and 12-16 are indefinite because they depend on rejected base claims.

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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Claims 1, 3-6 and 11-16 are rejected under 35 U.S.C.102 (e) as being anticipated by Takahashi (US Pat. 6037,824):

Regarding claim 1, figure 7 of Takahashi shows a circuit comprising: a differential sense circuit (210, 220, 231), a latch (233) said differential sense circuit and said latch being coupled so as to form a differential sense latch such that, in operation, an electronic signal stored in said latch is retained for at least one clock cycle, wherein said differential sense circuit is coupled to said latch in a push-pull (P31, N31, P32, N32). Note that it is inherent that the latch stores "an electronic signal" for at least on clock cycle. This is the basic operation of a latch circuit.

Regarding claim 3, the circuit further comprises a sense amp (210, 220, 231, IN3, IN4), said sense amp and said differential sense latch (233). The differential signals present on differential output terminals of said sense amp cause an electronic signal to be stored in said differential sense latch (233).

Regarding claim 4, the sense amplifier is a P-type amplifier (P11, P12).

Regarding claim 5, the differential sense circuit comprises a first inverter (P31, N31), the second inverter (P32, N32), the third inverter (IN3) and the fourth inverter (IN4).

Regarding claim 6, the differential sense circuit is symmetrical, thus the loads, in operation, are substantially equivalent.

Regarding claims 11 and 12, figure 7 of Katahashi (6,037,824) shows a method for storing electronic signals produced by a differential circuit comprising: pre-charging said differential circuit (elements N12, N13); evaluating said differential circuit (231); sensing differential output signals via a differential sense circuit (231), wherein said differential sense circuit is coupled to a latch (233) in a push-pull configuration (via 231); and storing an electronic signal corresponding to said differential output signal. Transistors (M12, N13) when activated will pull the output approximately to ground level.

Regarding claim 13-16, figure 7 of Takahashi (824) shows a method for storing electronic signals produced by a differential circuit comprising: applying clock (iclhb0) after pre-charging to bring the differential output terminal (the drain of N31 to a power supply voltage Vdd) and applying clock (iclkb3) to bring the differential output terminal (the source of N32 to a ground voltage).

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Claim 10 is rejected under 35 U.S.C 102(e) as being anticipated by Takahashi (US Pat. 5,982,689).

Regarding claim 10, figure 7 shows a circuit comprising differential circuit comprising a differential domino circuit (M31, M11, M41, M21), the differential domino circuit and the differential sense latch (CELL) being coupled such that, in operation, differential output signals present on differential output terminals of the differential domino circuit cause a corresponding electronic signal to be stored in the differential sense latch (CELL).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Pat. 6,037,824).

Regarding claim 7, figure 7 of Takahashi (824) includes all the limitations of the present invention except for the limitation that the sense amplifier comprises an n-type sense amplifier. However, it is well known the art that the n-type or the p-type sense amplifier is used depending on the selection of supply voltages to make them conductive. Therefore, it would have been obvious to a person skilled in the art at the time of the invention was made to use the n-type sense amplifier to conform to the "high level" input signals.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (5,982,689) further in view of Takahashi (6,037,824).

Regarding claims 17-20, figure 1 of Takahashi (689) show an integrated circuit (IC) comprising: a plurality of data paths, at least one of said data paths comprising: a differential circuit (SA) and a differential sense latch (CELL, M31, M41, M11, M21), wherein said differential sense latch comprises a **differential sense circuit** (M31, M41, M11, M21) and a jam-latch (CELL) coupled such that, in operation, an electronic signal based, at least in part, on

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differential output terminals of said differential circuit is stored in said jam-latch; not disclosed is the **differential sense circuit** is coupled to said jam-latch in a push-pull configuration. Figure 7 of Takahashi (824) teaches a differential circuit (210), and a differential sense latch (231, 232, 233) wherein the differential sense circuit (231, 232) is coupled to the latch (233) in a push-pull configuration for the purpose of supplying the latch with fully positive or negative- swing input signals. Therefore, it would have been obvious to those skilled in the art to replace the differential sense circuit (SA, M31, M41, M11, M21) of Takahashi (689) with the differential sense circuit (210, 220, 231) of Takahashi (824) for the purpose of supplying the jam-latch (CELL) with fully positive or negative- swing input signals.

Regarding claims 21-24, the limitations "a processor", "a microprocessor", "a network processor and "a digital processor" are merely intended uses. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQF.2d 1647 (1987). Therefore, this limitation has not been given patentable weight.

Response to Arguments

Applicant's arguments filed on 06-25-2001 have been fully considered but they are not persuasive. Applicant argues that the prior art (Takahashi, 824) does not disclose that an electronic signal is "stored in said latch for at least one clock cycle, wherein said differential sense circuit is coupled to said latch in a push-pull configuration". Figure 7 of Takahashi shows a **push-pull configuration comprising (P31, N31, P32, N32)** coupled to the latch (233). It is well known that a circuit is operated with a clock signal and the latch is part of the circuit will also function (i.e., storing, latching) in accordance with the clock cycle. Therefore, the push-pull effect and the functioning of the latch are fully disclosed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Allowable Subject Matter

Claims 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8-9 are objected to because the prior art of record fails to teach or fairly suggest a differential sense amplifier comprising a first and second inverters having stacked n-devices as called for in claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Hiep Nguyen whose telephone number is (703) 305-0127. The examiner can normally be reached on Monday to Friday from 7:30 A.M. to 4:00 P.M..

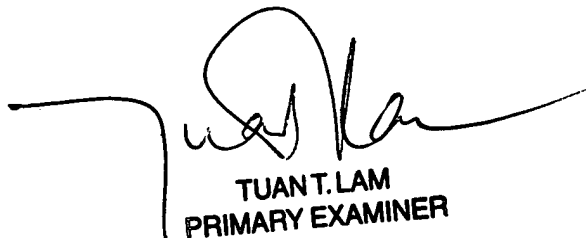
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (703) 308-4876. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Hiep Nguyen

Examiner

08-18-2000



TUANT. LAM
PRIMARY EXAMINER